PATENT
Attorney Docket No. 23105-B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

STEINER, HAMILTON

Serial No. Not yet assigned

Filed: April 5, 2001

For: **NOVEL PYRROLIDINE CARBOXYLATE HAIR REVITALIZING AGENTS**
(Parent application nos. 08/869,426 and 09/369,860 were assigned to Group Art Unit 1614, Examiner: R. Cook)

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Before action in the captioned application and before calculation of the filing fee, please amend the captioned application as follows:

IN THE SPECIFICATION

Please amend the specification at page 1, line 3 as indicated in Appendix 1 of this Preliminary Amendment.

IN THE CLAIMS

Please cancel claims 1-5, 9, 13, 17, and 21 without prejudice or disclaimer to the subject matter expressed therein.

Please amend claims 6-8, 10-12, 14-16, 18-20, and 22-24, as indicated in the "mark-up" copy found in Appendix 2 of this

Preliminary Amendment. A "clean" copy of the amended claims, in compliance with 37 C.F.R. §1.121, may also be found in Appendix 3 of this Preliminary Amendment.

Please add new claims 25-27, as shown in the "clean" copy of the pending claims found in Appendix 3 of this Preliminary Amendment.

REMARKS

The Specification has been amended to insert a claim to priority to the parent applications of this Divisional application. A "clean" copy of the paragraph to be added to the Specification is attached hereto as Appendix 1. Claims 1-5, 9, 13, 17, and 21 have been canceled. Claims 6-8, 10-12, 14-16, 18-20, and 22-24 have been amended. New claims 25-27 have been added to the application. Upon entry of the above amendments, claims 6-8, 10-12, 14-16, 18-20, 22-24, and 25-27 are pending in the application. The amendments do not introduce new matter within the meaning of 35 U.S.C. §132. Basis for the amendments is found at page 1, lines 6-10; page 4, lines 17-20; page 5, line 6 to page 6, line 1; page 24, line 22 to page 26, line 8; in claims 1-24 as originally filed; and elsewhere throughout the specification and claims. Accordingly, the Examiner is respectfully requested to enter the above amendments before examination.

The Examiner is welcomed to telephone the undersigned attorney if she/he has any questions or comments.

Respectfully submitted,

NATH & ASSOCIATES PLLC

Date: April 5, 2001

Gary M. Nath
Reg. No. 26,965
Todd L. Juneau
Reg. No. 40,669
Customer No. 20529

NATH & ASSOCIATES
1030 15th Street, N.W.
6th Floor
Washington, D.C. 20005
Tel: (202) 775-8383
Fax: (202) 775-8396
GMN:TLJ:ch PA.wpd

Appendix 1

Addition to the Specification: clean copy (37 C.F.R. §1.121(b)(1)).

At page 1, line 3, please insert the following new paragraph:

This application is a divisional application of U.S. Patent Application Serial No. 09/369,860, filed August 9, 1999, which is a divisional application of U.S. Patent Application Serial No. 08/869,426, filed June 4, 1997, the entire contents of which are hereby incorporated by reference in their entirety.

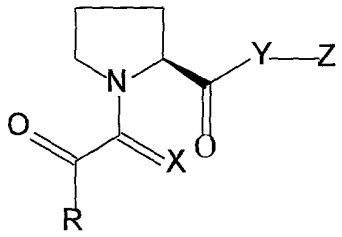
Appendix 2

Amendments to pending claims: mark-up copy (37 C.F.R. §1.121(c)(ii)).

Please cancel claims 1-5, 9, 13, 17, and 21 without prejudice or disclaimer to the subject matter expressed therein.

Please amend claims 6-8, 10-12, 14-16, 18-20, and 22-24 as follows:

6. (Once amended) [The method of claim 5 wherein the pyrrolidine carboxylate is a compound of the formula] A method of promoting hair germination which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

[R_1] R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or [alkenyl group optionally substituted with C_3-C_8 cycloalkyl,] C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

where said alkyl[,] or alkenyl [, cycloalkyl or cycloalkenyl groups may be] is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy,

and where said cycloalkyl or cycloalkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, [2-] 2-pyridyl, [3-] 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has [having] one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, [C^1-C_6] C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino[:];

X is selected from the group consisting of oxygen, sulfur, methylene [(CH_2)], [or] and H_2;

Y is selected from the group consisting of oxygen [or] and NR_2, where R_2 is hydrogen or [C^1-C_6] C_1-C_6 alkyl; and

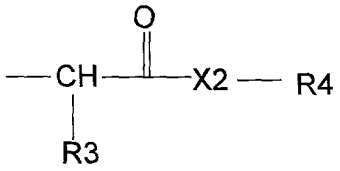
Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched alkenyl,

wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 [straight or unbranched] alkyl or C_2-C_6 alkenyl [chain], and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or [C_1-C_4]C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z [may also be the] is a fragment having the following formula:



wherein

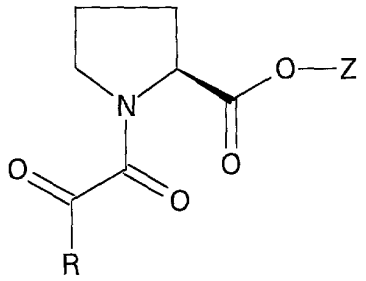
R_3 is a C_1-C_9 straight or branched alkyl [$\#_1$-C_8] or unsubstituted Ar_1,

wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl[,] or Ar_1 as defined above [, and unsubstituted Ar_1];

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl [; or pharmaceutically acceptable salts or hydrates thereof].

7. (Once amended) The method of claim [5] 6 wherein the [pyrrolidine carboxylate is a] compound is of [the] formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R [R_1] is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl [group optionally substituted with C_3-C_8 cycloalkyl], C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

where said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

and where said [alkyl, alkenyl,] cycloalkyl or cycloalkenyl [groups may be] is optionally substituted with C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy [, and where];

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched [chain] alkyl or C_2-C_6 straight or branched alkenyl,

wherein the $\underline{C_2\text{-}C_6}$ straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 [as defined above], C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or $\underline{C_2\text{-}C_6}$ alkenyl [chain], or Ar_2, [where]

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or $\underline{C_2\text{-}C_6}$ straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino [; or pharmaceutically acceptable salts or hydrates thereof].

8. (Once amended) The method of claim [5] 6 wherein the [pyrrolidine carboxylate] compound is selected [form] from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl (2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl)

pyrrolidinecarboxylate,

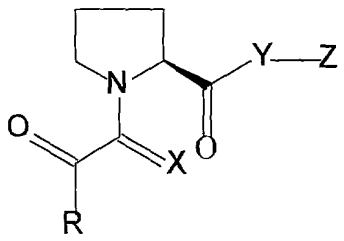
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate, [and]

or a pharmaceutically acceptable salt, hydrate, or mixture [salts, hydrates, or mixtures] thereof.

10. (Once amended) [The method of claim 9 wherein the pyrrolidine carboxylate is a compound of the formula] A method of preventing hair loss which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

[R_1] R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or [alkenyl group optionally

substituted with C_3-C_8 cycloalkyl,] <u>C_2-C_9 straight or branched chain alkenyl,</u> C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, <u>and</u> Ar_1,

where said alkyl[,] <u>or</u> alkenyl [, cycloalkyl or cycloalkenyl groups may be] <u>is</u> optionally substituted with <u>C_3-C_8 cycloalkyl,</u> C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy,

<u>and where said cycloalkyl or cycloalkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy</u>,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, [2-] <u>2-pyridyl</u>, [3-] <u>3-pyridyl</u>, 4-pyridyl, and phenyl,

<u>wherein said Ar_1 has</u> [having] one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, [C^1-C_6]<u>C_1-C_6</u> straight or branched alkyl or <u>C_2-C_6 straight or branched</u> alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino[:]<u>;</u>

X is selected from the group consisting of oxygen, sulfur, methylene [(CH_2)], [or] <u>and</u> H_2;

Y is selected from the group consisting of oxygen [or] <u>and</u> NR_2, where R_2 is hydrogen or [C^1-C_6] <u>C_1-C_6</u> alkyl; and

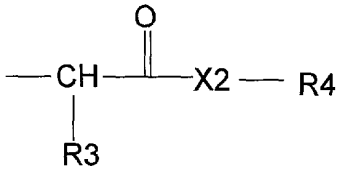
Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched alkenyl,

wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 [straight or unbranched] alkyl or C_2-C_6 alkenyl [chain], and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or [C_1-C_4]C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z [may also be the] is a fragment having the following formula:



wherein

R_3 is a C_1-C_9 straight or branched alkyl [#$_1$-C_8] or

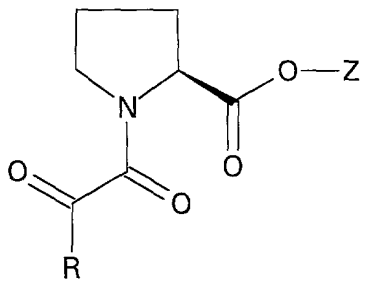
unsubstituted Ar_1,

wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl[,] or Ar_1 as defined above [, and unsubstituted Ar_1];

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl [; or pharmaceutically acceptable salts or hydrates thereof].

11. (Once amended) The method of claim [9] 10 wherein the [pyrrolidine carboxylate is a] compound is of [the] formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R [R_1] is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl [group optionally substituted

with C_3-C_8 cycloalkyl], C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

where said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

and where said [alkyl, alkenyl,] cycloalkyl or cycloalkenyl [groups may be] is optionally substituted with C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy [, and where];

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched [chain] alkyl or C_2-C_6 straight or branched alkenyl,

above], C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl [chain], or Ar_2, [where]

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino [; or pharmaceutically acceptable salts or hydrates thereof].

12. (Once amended) The method of claim [9] 10 wherein the [pyrrolidine carboxylate] compound is selected [form] from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl (2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-

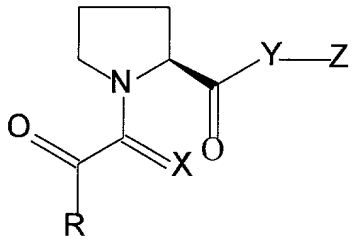
pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate, [and]

or a pharmaceutically acceptable salt, hydrate, or mixture [salts, hydrates, or mixtures] thereof.

14. (Once amended) [The method of claim 13 wherein the pyrrolidine carboxylate is a compound of the formula] A method of treating alopecia which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

[R_1] R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or [alkenyl group optionally substituted with C_3-C_8 cycloalkyl,] C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

where said alkyl[,] or alkenyl [, cycloalkyl or cycloalkenyl groups may be] is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy,

and where said cycloalkyl or cycloalkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, [2-] 2-pyridyl, [3-] 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has [having] one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, [C^1-C_6] C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino[:];

X is selected from the group consisting of oxygen, sulfur, methylene [(CH_2)], [or] and H_2;

Y is selected from the group consisting of oxygen [or] and NR_2, where R_2 is hydrogen or [C^1-C_6] C_1-C_6 alkyl; and

Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched alkenyl,

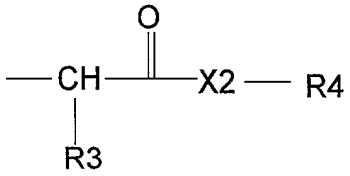
wherein the C_2-C_6 straight or branched alkyl [chain] is

substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 [straight or unbranched] alkyl or C_2-C_6 alkenyl [chain], and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or [C_1-C_4]C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z [may also be the] is a fragment having the following formula:



wherein

R_3 is a C_1-C_9 straight or branched alkyl [$\#_1$-C_8] or unsubstituted Ar_1,

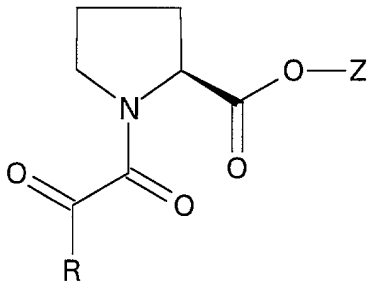
wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl[,] or Ar_1 as

defined above [, and unsubstituted Ar_1];

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl [; or pharmaceutically acceptable salts or hydrates thereof].

15. (Once amended) The method of claim 14 [13] wherein the [pyrrolidine carboxylate is a] compound is of [the] formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R [R_1] is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl [group optionally substituted with C_3-C_8 cycloalkyl], C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

where said C_1-C_9 straight or branched chain alkyl or C_2-C_9

straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

and where said [alkyl, alkenyl,] cycloalkyl or cycloalkenyl [groups may be] is optionally substituted with C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy [, and where];

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched [chain] alkyl or C_2-C_6 straight or branched alkenyl,

wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 [as defined above], C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl [chain], or Ar_2, [where]

Ar_2 is selected from the group consisting of 2-indolyl, 3-

indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino [; or pharmaceutically acceptable salts or hydrates thereof].

16. (Once amended) The method of claim [13] 14 wherein the [pyrrolidine carboxylate] compound is selected [form] from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl (2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-

dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-

2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

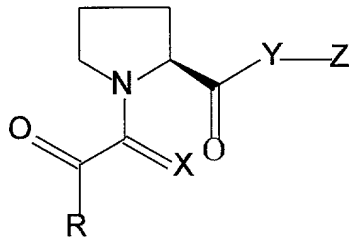
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate, [and]

or a pharmaceutically acceptable salt, hydrate, or mixture [salts, hydrates, or mixtures] thereof.

18. (Once amended) [The method of claim 17 wherein the pyrrolidine carboxylate is a compound of the formula] A method of treating hair loss which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

[R_1] R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or [alkenyl group optionally substituted with C_3-C_8 cycloalkyl,] C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

where said alkyl[,] or alkenyl [, cycloalkyl or cycloalkenyl groups may be] is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or

hydroxy,

and where said cycloalkyl or cycloalkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, [2-] 2-pyridyl, [3-] 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has [having] one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, [C^1-C_6] C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino[:];

X is selected from the group consisting of oxygen, sulfur, methylene [(CH_2)], [or] and H_2;

Y is selected from the group consisting of oxygen [or] and NR_2, where R_2 is hydrogen or [C^1-C_6] C_1-C_6 alkyl; and

Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched alkenyl,

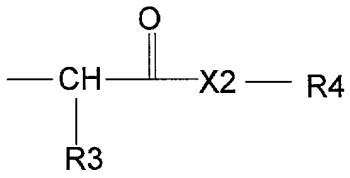
wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 [straight or unbranched] alkyl or C_2-C_6 alkenyl [chain],

and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or [C_1-C_4]C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z [may also be the] is a fragment having the following formula:



wherein

R_3 is a C_1-C_9 straight or branched alkyl [$\#_1$-C_8] or unsubstituted Ar_1,

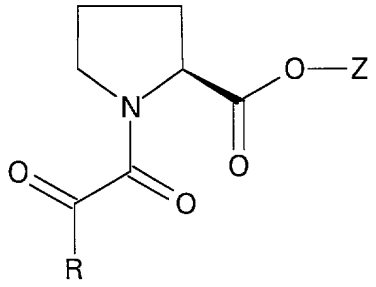
wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl[,] or Ar_1 as defined above [, and unsubstituted Ar_1];

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or

branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl [; or pharmaceutically acceptable salts or hydrates thereof].

19. (Once amended) The method of claim 18 [17] wherein the [pyrrolidine carboxylate is a] compound is of [the] formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R [R_1] is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl [group optionally substituted with C_3-C_8 cycloalkyl], C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

where said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

and where said [alkyl, alkenyl,] cycloalkyl or cycloalkenyl [groups may be] is optionally substituted with C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy [, and where];

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched [chain] alkyl or C_2-C_6 straight or branched alkenyl,

wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 [as defined above], C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl [chain], or Ar_2, [where]

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino [; or pharmaceutically acceptable salts or hydrates thereof].

20. (Once amended) The method of claim [17] 18 wherein the [pyrrolidine carboxylate] compound is selected [form] from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl (2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-

pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-

2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

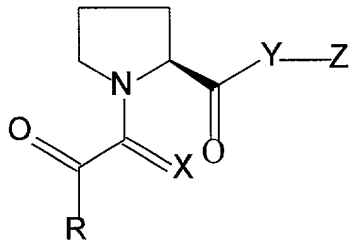
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate, [and]

or a pharmaceutically acceptable salt, hydrate, or mixture [salts, hydrates, or mixtures] thereof.

22. (Once amended) [The method of claim 21 wherein the pyrrolidine carboxylate is a compound of the formula] A method of treating hair loss which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

[R_1] R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or [alkenyl group optionally substituted with C_3-C_8 cycloalkyl,] C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

where said alkyl[,] or alkenyl [, cycloalkyl or cycloalkenyl groups may be] is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy,

and where said cycloalkyl or cycloalkenyl is optionally

substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, [2-] 2-pyridyl, [3-] 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has [having] one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, [C^1-C_6] C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino[:];

X is selected from the group consisting of oxygen, sulfur, methylene [(CH_2)], [or] and H_2;

Y is selected from the group consisting of oxygen [or] and NR_2, where R_2 is hydrogen or [C^1-C_6] C_1-C_6 alkyl; and

Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched alkenyl,

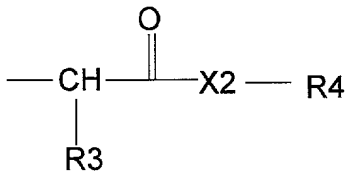
wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 [straight or unbranched] alkyl or C_2-C_6 alkenyl [chain], and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-

indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or [C_1-C_4]C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z [may also be the] is a fragment having the following formula:



wherein

R_3 is a C_1-C_9 straight or branched alkyl [#$_1$-C_8] or unsubstituted Ar_1,

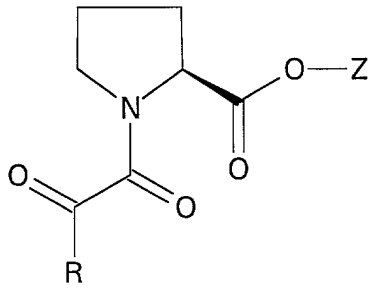
wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl[,] or Ar_1 as defined above [, and unsubstituted Ar_1];

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-

C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl [; or pharmaceutically acceptable salts or hydrates thereof].

23. (Once amended) The method of claim 22 [23] wherein the [pyrrolidine carboxylate is a] compound is of [the] formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R [R_1] is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl [group optionally substituted with C_3-C_8 cycloalkyl], C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

where said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

and where said [alkyl, alkenyl,] cycloalkyl or cycloalkenyl [groups may be] is optionally substituted

with C_1-C_4 alkyl, $C_{[1]2}$-C_4 alkenyl, or hydroxy [, and where

];

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched [chain] alkyl or C_2-C_6 straight or branched alkenyl,

wherein the C_2-C_6 straight or branched alkyl [chain] is substituted in one or more positions with Ar_1 [as defined above], C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl [chain], or Ar_2, [where]

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, [or] and phenyl,

[having] wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro,

trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or $C_{[1]2}$-C_4 alkenyloxy, phenoxy, benzyloxy, and amino [; or pharmaceutically acceptable salts or hydrates thereof].

24. (Once amended) The method of claim [21] 22 wherein the [pyrrolidine carboxylate] compound is selected [form] from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl (2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

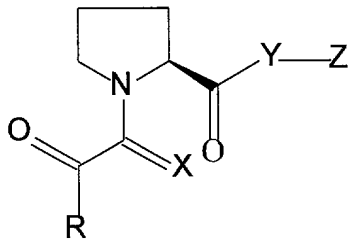
3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate, [and]

or a pharmaceutically acceptable salt, hydrate, or mixture [salts, hydrates, or mixtures] thereof.

Appendix 3

Clean copy of all pending claims (37 C.F.R. §1.121(c)(i)).

6. (Once amended) A method of promoting hair germination which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

wherein said alkyl or alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has [having] one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

X is selected from the group consisting of oxygen, sulfur, methylene, and H_2;

Y is selected from the group consisting of oxygen and NR_2, where R_2 is hydrogen or C_1-C_6 alkyl; and

Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl, and Ar_2,

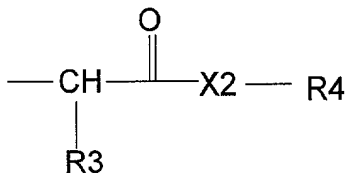
wherein the C_2-C_6 straight or branched alkyl is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, or cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are

independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z is a fragment having the following formula:



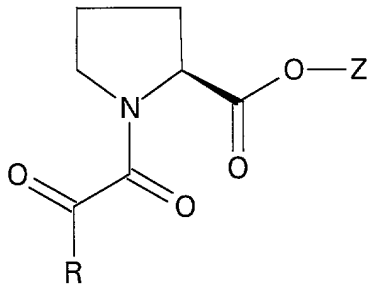
wherein

R_3 is a C_1-C_9 straight or branched alkyl or unsubstituted Ar_1, wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl or Ar_1 as defined above;

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl.

7. (Once amended) The method of claim 6 wherein the compound is of formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

wherein said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy;

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6

straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, or Ar_2,

wherein said C_2-C_6 straight or branched alkyl chain is substituted in one or more positions with Ar_1,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino.

8. (Once amended) The method of claim 6 wherein the compound is selected from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl(2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-

pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

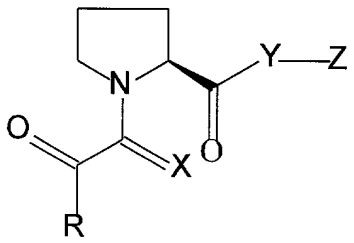
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate,

or a pharmaceutically acceptable salt, hydrate, or mixture thereof.

10. (Once amended) A method of preventing hair loss which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is selected from the group consisting of a C_1-C_9 straight or

branched chain alkyl or C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

wherein said alkyl or alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

X is selected from the group consisting of oxygen, sulfur, methylene, and H_2;

Y is selected from the group consisting of oxygen and NR_2, where R_2 is hydrogen or C_1-C_6 alkyl; and

Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl, C_2-C_6 straight or branched chain alkenyl, and Ar_2,

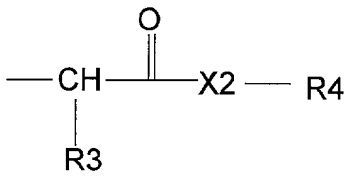
wherein the C_2-C_6 straight or branched alkyl [chain] is

substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, or cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z is a fragment having the following formula:



wherein

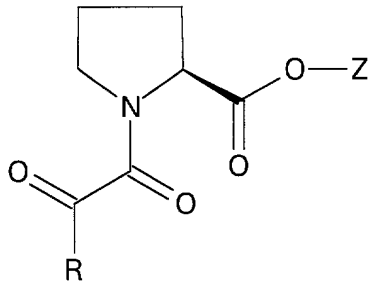
R_3 is a C_1-C_9 straight or branched alkyl or unsubstituted Ar_1, wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl or Ar_1 as defined above;

X_2 is O or NR_5, where R_5 is selected from the group consisting

of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl.

11. (Once amended) The method of claim 10 wherein the compound is of formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

wherein said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally

substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy;

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, or Ar_2,

wherein said C_2-C_6 straight or branched alkyl chain is substituted in one or more positions with Ar_1,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino.

12. (Once amended) The method of claim 10 wherein the compound is selected from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl(2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-

dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

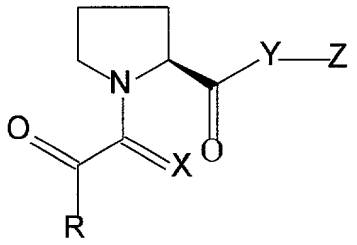
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate,

or a pharmaceutically acceptable salt, hydrate, or mixture thereof.

14. (Once amended) A method of treating alopecia which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

wherein said alkyl or alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy,

benzyloxy, and amino;

X is selected from the group consisting of oxygen, sulfur, methylene, and H_2;

Y is selected from the group consisting of oxygen and NR_2, where R_2 is hydrogen or C_1-C_6 alkyl; and

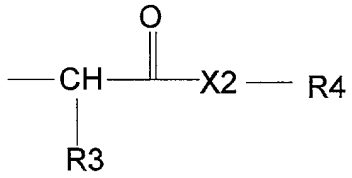
Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, and Ar_2,

wherein the C_2-C_6 straight or branched alkyl is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, or cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z is a fragment having the following formula:



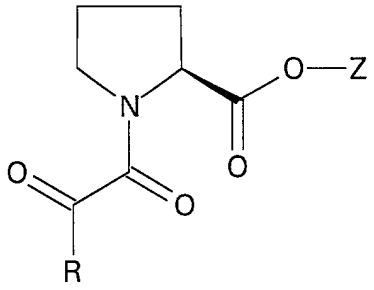
wherein

R_3 is a C_1-C_9 straight or branched alkyl or unsubstituted Ar_1, wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl or Ar_1 as defined above;

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_1-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl.

15. (Once amended) The method of claim 14 wherein the compound is of formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

wherein said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy;

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy,

benzyloxy, and amino;

Z is a C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, or Ar_2,

wherein said C_2-C_6 straight or branched alkyl chain is substituted in one or more positions with Ar_1,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino.

16. (Once amended) The method of claim 14 wherein the compound is selected from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl(2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl)

pyrrolidinecarboxylate,

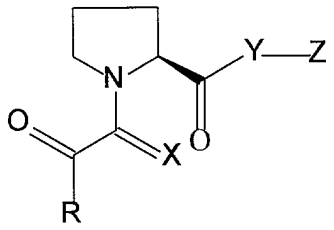
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate,

or a pharmaceutically acceptable salt, hydrate, or mixture thereof.

18. (Once amended) A method of treating hair loss which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

wherein said alkyl or alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

X is selected from the group consisting of oxygen, sulfur, methylene, and H_2;

Y is selected from the group consisting of oxygen and NR_2, where R_2 is hydrogen or C_1-C_6 alkyl; and

Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, and Ar_2,

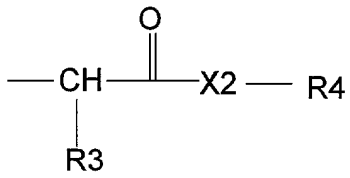
wherein the C_2-C_6 straight or branched alkyl is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, or cycloalkyl connected by a C_1-

C_6 alkyl or C_2-C_6 alkenyl, and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z is a fragment having the following formula:



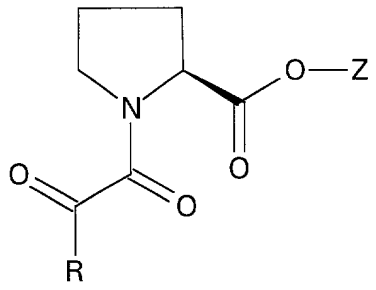
wherein

R_3 is a C_1-C_9 straight or branched alkyl or unsubstituted Ar_1, wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl or Ar_1 as defined above;

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl.

19. (Once amended) The method of claim 18 wherein the compound is of formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

wherein said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy;

Ar_1 is selected from the group consisting of 1-naphthyl, 2-

naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, or Ar_2,

wherein said C_2-C_6 straight or branched alkyl chain is substituted in one or more positions with Ar_1,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino.

20. (Once amended) The method of claim 18 wherein the compound is selected from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl(2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-

dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

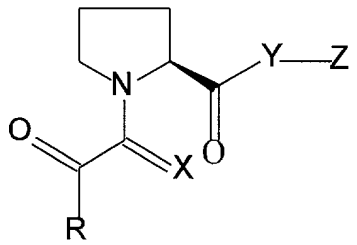
3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate,

or a pharmaceutically acceptable salt, hydrate, or mixture thereof.

22. (Once amended) A method of treating hair loss associated with cancer therapy, wherein the cancer therapy is selected from the group consisting of radiation and chemotherapy, which comprises: administering to an animal in need thereof an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

wherein said alkyl or alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy,

benzyloxy, and amino;

X is selected from the group consisting of oxygen, sulfur, methylene, and H_2;

Y is selected from the group consisting of oxygen and NR_2, where R_2 is hydrogen or C_1-C_6 alkyl; and

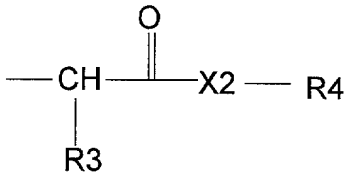
Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, and Ar_2,

wherein the C_2-C_6 straight or branched alkyl is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, or cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, and Ar_2,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z is a fragment having the following formula:



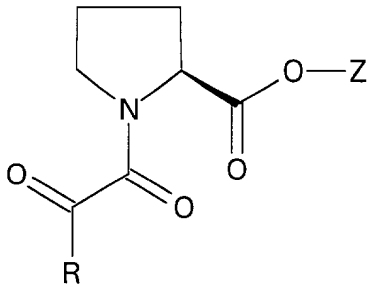
wherein

R_3 is a C_1-C_9 straight or branched alkyl or unsubstituted Ar_1, wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl or Ar_1 as defined above;

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

R_4 is selected from the group consisting of phenyl, benzyl, C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or alkenyl substituted with phenyl.

23. (Once amended) The method of claim 22 wherein the compound is of formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

wherein said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

where said cycloalkyl or cycloalkenylis optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy;

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy,

benzyloxy, and amino;

Z is a C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, or Ar_2,

wherein said C_2-C_6 straight or branched alkyl chain is substituted in one or more positions with Ar_1,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino.

24. (Once amended) The method of claim 22 wherein the compound is selected from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl(2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl)

pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

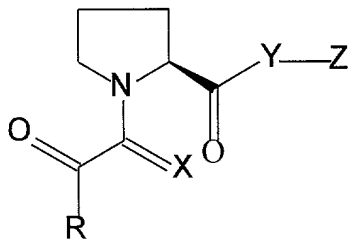
3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate,

or a pharmaceutically acceptable salt, hydrate, or mixture thereof.

25. (New) A pharmaceutical composition comprising:

(i) an effective amount of a compound of formula I:



I

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is selected from the group consisting of a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl, C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, and Ar_1,

wherein said alkyl or alkenyl is optionally substituted

with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

wherein said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

X is selected from the group consisting of oxygen, sulfur, methylene, and H_2;

Y is selected from the group consisting of oxygen and NR_2, where R_2 is hydrogen or C_1-C_6 alkyl; and

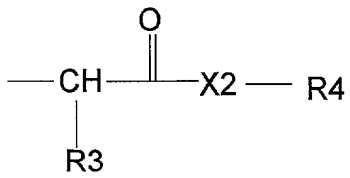
Z is selected from the group consisting of C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, and Ar_2,

wherein the C_2-C_6 straight or branched alkyl is substituted in one or more positions with Ar_1 as defined above, C_3-C_8 cycloalkyl, or cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl;

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

or Z is a fragment having the following formula:



wherein

R_3 is a C_1-C_9 straight or branched alkyl or unsubstituted Ar_1, wherein said C_1-C_9 straight or branched alkyl is optionally substituted with C_3-C_8 cycloalkyl or Ar_1 as defined above;

X_2 is O or NR_5, where R_5 is selected from the group consisting of hydrogen, C_1-C_6 straight or branched alkyl, and C_2-C_6 straight or branched alkenyl; and

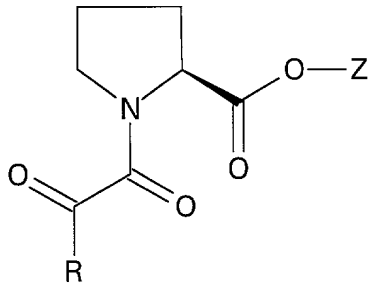
R_4 is selected from the group consisting of phenyl, benzyl, C_1-

C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl, and C_1-C_5 straight or branched alkyl or C_2-C_5 straight or branched alkenyl substituted with phenyl;

(ii) a second hair revitalizing compound; and

(iii) a pharmaceutically acceptable carrier.

26. (New) The pharmaceutical composition of claim 25 wherein the compound is of formula II:



II

or a pharmaceutically acceptable salt or hydrate thereof,

wherein

R is a C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl C_3 or C_5 cycloalkyl, C_5-C_7 cycloalkenyl, or Ar_1,

wherein said C_1-C_9 straight or branched chain alkyl or C_2-C_9 straight or branched chain alkenyl is optionally substituted with C_3-C_8 cycloalkyl, C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy,

wherein said cycloalkyl or cycloalkenyl is optionally substituted with C_1-C_4 alkyl, C_2-C_4 alkenyl, or hydroxy;

Ar_1 is selected from the group consisting of 1-naphthyl, 2-naphthyl, 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_1 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino;

Z is a C_2-C_6 straight or branched chain alkyl or C_2-C_6 straight or branched chain alkenyl, C_3-C_8 cycloalkyl, cycloalkyl connected by a C_1-C_6 alkyl or C_2-C_6 alkenyl, or Ar_2,

wherein said C_2-C_6 straight or branched alkyl chain is substituted in one or more positions with Ar_1,

Ar_2 is selected from the group consisting of 2-indolyl, 3-indolyl, 2-furyl, 3-furyl, 2-thiazolyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, and phenyl,

wherein said Ar_2 has one to three substituents which are independently selected from the group consisting of hydrogen, halo, hydroxyl, nitro, trifluoromethyl, C_1-C_6 straight or branched alkyl or C_2-C_6 straight or branched alkenyl, C_1-C_4 alkoxy or C_2-C_4 alkenyloxy, phenoxy, benzyloxy, and amino.

27. (New) The pharmaceutical composition of claim 25 wherein the compound is selected from the group consisting of:

3-phenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-prop-2-(E)-enyl (2S)-1-(3,3,-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3,4,5-trimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-propyl (2S)-1-(3,3,dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4,5-methylenedioxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-cyclohexyl-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

(1R)-1,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-furanyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thienyl])entyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2-[2-thiazolyl])ethyl-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(1,2-dioxo-2,phenyl)ethyl-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2,5-dimethoxyphenyl)-1-prop-2-(E)-enyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

2-(3,4,5-trimethoxyphenyl)-1-ethyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(2-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(4-Pyridyl)-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-phenyl-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexylethyl-1,2-

dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-*tert*-butyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3,3-diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxopentyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-1-(2-cyclohexyl-1,2-dioxoethyl)-2-pyrrolidinecarboxylate,

3-(3-Pyridyl)-1-propyl (2S)-N-([2-thienyl]glyoxyl) pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-(3,3-dimethyl-1,2-dioxobutyl)-2-pyrrolidinecarboxylate,

3,3-Diphenyl-1-propyl (2S)-1-cyclohexylglyoxyl-2-pyrrolidinecarboxylate, and

3,3-Diphenyl-1-propyl (2S)-1-(2-thienyl)glyoxyl-2-pyrrolidinecarboxylate,

or a pharmaceutically acceptable salt, hydrate, or mixture thereof.